



ASX: MRL

Equity Research

26th April 2023

SPECULATIVE BUY

Share Price	\$0.18
Valuation	\$0.67
Price Target	\$1.20

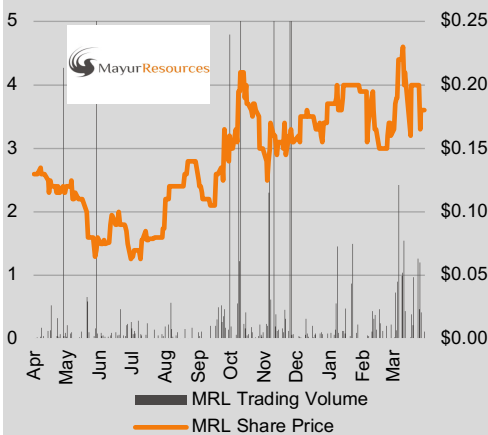
52-Week Range	\$0.059 - \$0.235
MRL Shares Outstanding	295.6m
Performance Rights	70.8m
Market Capitalisation	\$53.2m
Cash (31 Dec 2022)	\$2.9m
Enterprise Value	\$50.3m

Board & Management:

Charles Fear	Chairman
Chris Indermaur	Non-Executive Director
Benjamin Szeto	Non-Executive Director
Tim Crossley	Executive Director
Paul Mulder	Managing Director
Darren Lockyer	Head of Business Affairs
Keith Downham	COO/CEO Mayur Iron
Kerry Parker	CFO
Shawn Thompson	Project Director
Tom Charlton	Chief Geologist
Bruno Wauters	Advisory Board Member – Lime
Brad Lemmon	Advisory Board Member – Lime
Campbell Jones	Advisory Board Member – Lime
Trent Alexander	Advisory Board Member – Lime

Top 10 Shareholders

DTJ Co Pty Ltd	15.4%
Buttonwood Nominees Pty Ltd	5.7%
HSBC Nominees Pty Ltd	5.7%
QMP Nominees Pty Ltd	5.1%
Level 280 Riverside Pty Ltd	4.6%
T Mitchell Pty Ltd	3.4%
Quality Life Pty Ltd	2.8%
Timmoo Pty Ltd	2.7%
Mt Paul Levi Mulder	2.4%
Thomas Jonathan Charlton	2.1%



Mayur Resources (ASX: MRL) is an ASX-listed Australian company developing a renewable energy portfolio and minerals business in PNG to answer the growing call from the mining and construction industries in the Asia Pacific region for "net zero" inputs.

Mayur Resources Limited

Sustainably Leveraging PNG's Natural Resources Endowment

Projects Portfolio: Mayur Resources' strategy aims to deliver shareholder value while becoming a significant partner in the nation building of Papua New Guinea (PNG). The portfolio consists of the Central Cement and Lime (CCL) project, the Orokolo Bay magnetite and mineral sands project and three renewable projects. Mayur has prioritised coastal regions for ease of development and future access to sea borne markets. As well as reducing material imports and developing export revenues, the various projects provide job and wealth creation, diversification and alternative revenues to the PNG Government outside the major gold and LNG projects.

Government Support: the strategy is well supported by the State and Provincial Governments as well as landowners with all the advanced projects fully permitted, with mining licence and environmental approvals in place. Note the Government Forum taking place in May 2023 should discuss the allocation of royalties and work to local businesses during the construction and operation.

Central Lime (CLP) Project: This is phase one of the Central Cement & Lime project (excluding Clinker & Cement) the project is ideally placed geographically to service growing demand in the South-East Asia (SEA) and Pacific regions. The project also benefits from its location in a Special Economic Zone with a 10-year tax holiday.

Lime Products Market: Demand for Lime in SEA and Oceania is expected to grow rapidly over the next few years, specifically driven by increased processing capacity of nickel and bauxite in Indonesia; Indonesian demand for Lime forecast to grow at a 14.6% CAGR to 2030. Global demand for Lime is also expected to grow, driven by a projected increase in steel production output and increased demand from non-ferrous metals processing – which have important applications in the energy transition. Prices have already reflected this demand pressure, with export quicklime prices reaching US\$126/t FOB in 2022, compared to US\$100/t assumed by MRL in its development studies. Further price upside in the range of \$230/t to \$260/t have also been reported elsewhere.

CCL Project Valuation*: using different quicklime price assumptions:

Quicklime Price	NPV _{8%}	NPV _{8%}	Risked 30% x NPV	IRR
US\$100/t	US\$135.4m	A\$193.4m	A\$58.0m	26%
US\$126/t	US\$218.1m	A\$311.6m	A\$93.5m	36%
US\$230/t	US\$549.2m	A\$783.4m	A\$235.4m	76%
US\$260/t	US\$644.7m	A\$921.0m	A\$276.3m	87%

* excluding Clinker & Cement

Orokolo Bay Magnetite and Industrial Minerals Project: the project already benefits from a binding off-take agreement with a Chinese specialist pellet manufacturer and a terms sheet with a leading Japanese trading house.

Orokolo Bay Project Valuation: using different iron ore price assumptions:

Iron Ore Price	NPV _{10%}	NPV _{10%}	Risked 30% x NPV	IRR
US\$80/t	US\$130.2m	A\$186.0m	A\$55.8m	116%
US\$100/t	US\$177.2m	A\$253.1m	A\$75.9m	168%
US\$120/t	US\$224.1m	A\$320.2m	A\$96.1m	224%

Renewables: beyond being attractive as standalone projects, the combination of the renewable projects (carbon offsets, solar farm and geothermal energy) with the industrial projects makes them more attractive to both financiers and off-takers.

Board and Management: Mayur have assembled both on its Board and as advisors a strong mix of commercial, project development and operational skills. Mayur has been successful in cherry picking the Lime industries top executives for its CPL advisory Board.

News flow: the key catalysts in the short and medium terms are the releases of funding structures for both the CLPL and Orokolo Bay projects followed construction updates.

MRL valuation: our sum of the parts valuation is supported by the NPV of the two most advanced projects. For current projects, a 70% discount risk factor or 30%xNPV has been applied to reflect the pre-funding stage and for the clinker/cement expansion case a 10%xNPV (90% discount) risk factor applied. The valuation includes a capital raising of \$5 million for working capital to derive a company valuation of \$215 million or \$0.67 per share. Beyond this valuation, we estimated an initial price target of \$1.20 assuming both key projects fully funded with a mix of debt and equity.

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All currencies are in Australian dollars unless otherwise specified.

1. MRL Valuation

Central Lime Project Valuation

We have modelled the CLP project in line with the updated DFS results announced on 26th July 2022 by MRL.

The key parameters are as follows:

- Annual production of 356,400 tonnes quicklime and 52,272 tonnes hydrated lime plus 500,000 tonnes raw limestone and 70,000 tonnes of road base/aggregate
- Planned production from Phase 1 supported by various arrangements with high quality offtake customers
- Scaled infrastructure for Phase 1 includes wharf, power station and access road
- Capital cost estimate of US\$91.0 million
- Product pricing:
 - Quicklime price: US\$100/t
 - Hydrated lime price: US\$120/t
 - Limestone price: US\$11/t
 - Road base/aggregate price: US\$12/t
- Operating Costs:
 - Quicklime cost: US\$49.82/t
 - Hydrated lime cost: US\$46.72/t
 - Limestone cost: US\$4.45/t
- PNG royalty: 2.5% of quicklime and quarry gate sales revenue
- Overheads of US\$0.5 million per annum

Our Post tax NPV_{8%} US\$135.4 million is close to MRL estimated NPV_{8%} at US\$133.5 million. Our IRR comes at 25.5% vs 24.4% estimated by MRL.

Further to the results of the Wood Mackenzie study on the demand for lime products, we varied the quicklime price accordingly. The study indicates that “on a weighted average basis, export quicklime prices in Asia Pacific have increased to US\$126/t FOB in 2022 with average prices in Eastern Australia on an EXW basis ranging from A\$330/t to \$380/t (US\$231/t to US\$266/t) – and even higher prices noted depending on local distribution on a delivered basis”.

Table 1.1 summarises the value of only the 1st Phase being the Central Lime Project using different quicklime sales price assumptions.

Table 1.1 – CLP Project NPV Valuation

Quicklime Price	NPV _{8%}	NPV _{8%}	Risked 30% x NPV	IRR
US\$100/t	US\$135.4m	A\$191.4m	A\$58.0m	26%
US\$126/t	US\$218.1m	A\$311.6m	A\$93.5m	36%
US\$230/t	US\$549.2m	A\$784.6m	A\$235.4m	76%
US\$260/t	US\$644.7m	A\$921.0m	A\$276.3m	87%

Source: Evolution Capital estimates. AUD/USD exchange rate assumed at 0.70

CCL Phase 1 is subject to financing with site works scheduled to begin as early as Q4 2023. Our 30% risk factor applied for the valuation reflects the stage of the project with development studies complete and all permits and approvals in place.

After the construction phase estimated at 18 months, the ramp-up of the operation will increase the valuation towards 100% of the NPV and possibly beyond subject to other products pricing.

For the avoidance of doubt the Clinker/Cement project being an additive Phase 2 of the combined Central Cement and Lime projects as a fully permitted project with offtake support had a reported NPV by Mayur Resources of A\$396.9 million and an annual EBIT of A\$128.8 million as outlined in the Managing Director's Letter to Shareholders on 11 July 2022. We have relied on this valuation and

considered only 10% of the NPV as a Risked-NPV at this time. Once the Central Lime Project (Phase 1) reaches Financial Investment Decision an update to this research report will include a detailed assessment of the Phase 2 project and the synergies in it being a brownfield expansion.

Orokolo Bay Magnetite and Industrial Sands Project Valuation

We have modelled the Orokolo Bay project in line with the DFS results announced by MRL on 11th September 2020 and updated on 4th April 2022.

The key parameters are as follows:

- 5 million tonnes per annum (tpa) mining operation for 15 years
- 410,000 tpa titano-magnetite concentrate production
- 100,000 tpa Dense Media Solution (DMS)
- 7,000 tpa zircon concentrate
- 1,000,000 tpa construction sand
- Capital cost estimate of US\$20.48 million
- Product pricing:
 - Iron ore price: US\$80/t (62% fines benchmark)
 - Discount applied for Mayur concentrate: 23%
 - DMS price: US\$165/t (delivered to Queensland customer)
 - Zircon concentrate price: US\$20 per % Zr (CFR China)
 - Construction sand price: US\$30/t (CFR Sydney)
- Operating costs (mining, processing, haulage, shipping and trucking) were modelled to be in line with MRL's development studies
- PNG royalty of 2.5% applied to revenue net of shipping costs

Our Post tax NPV_{10%} at US\$130.0 million is close to MRL estimated NPV_{10%} at US\$131.0 million. Our IRR comes at 113% vs 90% estimated by MRL.

For this project, we varied the iron ore price, while other prices remain constant.

Table 1.2 summarises the value of the Orokolo Bay project using those different iron prices.

Table 1.2 – Orokolo Bay Project NPV Valuation

Iron Ore Price	NPV _{10%}	NPV _{10%}	Risked 30% x NPV	IRR
US\$80/t	US\$130.2m	A\$186.0m	A\$55.8m	116%
US\$100/t	US\$177.2m	A\$253.1m	A\$75.9m	168%
US\$120/t	US\$224.1m	A\$320.2m	A\$96.1m	224%

Source: Evolution Capital estimates. AUD/USD exchange rate assumed at 0.70

Similarly, to the CLP project, we have selected a 30% risk factor (x) to reflect the stage of the project with development studies complete and all permits and approvals in place, but funding is still pending.

Renewables

We have modelled the carbon credits project in line with MRL publicly available parameters and derived an NPV_{8%} of US\$356m.

We also developed a first model for the solar farm.

Considering the development focus is on the Central Lime and Orokolo Bay project at this time, we have assigned a significantly discount (90% discount) to derive a risked-NPV of A\$60 million for those two renewable projects.

MRL Sum of the Parts Valuation

In determining the sum of the parts valuation for MRL and particularly with the view the company's projects are still subject to financing we have taken a conservative view against the project NPV's and have applied a **70%** discount to NPV for current projects and a 90% discount to NPV for the proposed clinker/cement project. In addition, we have conservatively assumed a future equity capital raising of \$5 million (25,000,000 shares at \$0.20) resulting in a total amount of 320,556,488 MRL shares used for our valuation.

Table 1.3 summarises the sum of the parts valuation for MRL.

Table 1.3 – MRL Sum of the Parts Valuation

Asset	Value Range	Preferred	Per Share
Central Lime project	A\$193m-\$921m		
30% (70% discount) risked NPV with quicklime at US\$126/t		\$93.1m	\$0.29
Central Cement and Lime Project – Phase 2	A\$396.2m		
10% (90% discount) risked NPV		\$39.7m	\$0.12
Orokolo Bay iron and mineral sands project	A\$186m-A\$320m		
30% (70% discount) risked NPV with iron ore price at US\$100/t		\$75.9m	\$0.24
Renewables projects		\$60.0m	\$0.19
Investment in Adyton Resources (TSXV: ADY) 42.8% interest		\$13.9m	\$0.04
Development costs		(\$60.0m)	(\$0.19)
Cash (as at 31 December 2022)		\$2.9m	\$0.01
New equity		\$5.0m	\$0.02
Corporate costs		(\$15.2m)	(\$0.05)
Total		\$215.3m	\$0.67

Source: Evolution Capital estimates

Beyond the valuation, we also estimated an initial price target of \$1.20 with both key projects fully funded. Should MRL then be successful in developing its CCL Phase 2 clinker and cement project we believe a higher price target would be warranted.

2. MRL Strategy

Mayur Resources' strategy aligns with the desire of the PNG government not only to diversify the country's extractive industry, but also, to add value to its vast mineral wealth and capture this value in country via the production of lime and other mineral products, as key nation building commodities.

Phase one of the CCL project being the Central Lime Project (CLP) is vertically integrated with the limestone quarry, quicklime plant and supporting infrastructure all to be co-located on a strategically located site on the Kido peninsular. The project will provide domestic production capability, enabling PNG to eliminate the need to purchase farther afield more expensive imported quicklime.

While MRL's strategy is to fully develop its CCL project with both lime and clinker/cement manufacturing capacity, a 90% discount to MRL's reported NPV has been taken up in this research, until Phase 1 has achieved Financial Investment Decision. *It should be noted that the expansion will involve the co-establishment of clinker and cement project facilities that has already incurred several years of development costs and is also fully permitted with offtake support in place and resides within the 10-year tax free Special Economic Zone.* Phase 2 would 100% service PNG's cement needs where currently 100% is imported from Japan and China and would be the closest nation to supply Australia where 50% of all of Australia's cementitious needs are serviced from northern Asia, three times further away as an import destination when compared to PNG.

The Orokolo Bay project will diversify the line of products with magnetite concentrate, dense media solution, zircon concentrate and construction sand to be exported to Australia, China and Japan as well as other nations of the Asia-Pacific region.

The projects' excellent geographical location on the southern coast of the country provides proximate access to export product to large markets in Australia and the south pacific. The development of a new export industry will assist in improving PNGs balance of trade with nations such as Australia.

3. Central Lime Project

Introduction

Mayur's Central Lime Project (CLP) is a vertically integrated manufacturing facility that has the potential to meet 100% of PNG's quicklime, hydrated lime and limestone requirements, with exports into the Australasian region, thereby displacing Asian imports into the region.

Location

The co located projects are split into Phase 1 (quicklime) and Phase 2 (clinker/cement) and are located approximately 25 km north-west of PNG's capital city, Port Moresby as per Figure 3.1.

Figure 3.1 – Central Cement and Lime Project Location Map



Source: MRL

Located on the coast, and 7km from the Exxon's PNG LNG facility, the project's co-located quarry, plant site and deep draft wharf will enable very low operating costs while providing direct access to both seaborne domestic and export markets such as Australia and other South Pacific nations.

Both projects have been granted Special Economic Zone status, confirming its support from local authorities and securing a range of concessions including tax relief (10-year tax holiday) and duty exemptions, which significantly strengthen financial outcomes.

The PNG Government awarded Mayur an unprecedented 20-year Mining Lease for the project in August 2020 and the company is in advanced discussions with a shortlist of large scale international strategic investors looking for a stake in a project.

Phase 1 Products

Lime is principally used in three forms, with the term 'Lime' generally referring to all three forms:

- Limestone is the raw mined or quarried stone that is cut or crushed to the appropriate size for its application.
- Quicklime and Hydrated Lime are two derivative products – being, respectively, Calcium Oxide derived through a calcining process, and Calcium Hydroxide, derived through adding water to Quicklime.

Lime is arguably the most diversly used mineral known to man with uses that range from industrial applications, including in both ferrous and non-ferrous metals processing, pollution abatement, PH correction in acidifying soils and waterways, water and sewerage treatment and stabilising metals in waste dumps. Lime is also widely used in a range of engineering applications to increase the strength of soils with poor engineering qualities and in the manufacture of lightweight aerated concrete blocks. Given Limes unique properties in pH correction and metals stabilisation, lime will also play a key role in mine closures and mine and municipal waste dump rehabilitation.

Lime is a critical input in the processing of non-ferrous battery and future green-facing metals including Nickel, Cobalt, Lithium, Copper, and Rare Earths. Lime's applications in ferrous metals processing include sintering, steelmaking, and secondary refining to remove impurities.

The Project primarily involves the manufacture of quicklime via the extraction and processing of high-grade limestone. In addition, a proportion of the quicklime will be hydrated for domestic and export customers and limestone will also be extracted for direct sale to both export and domestic customers. The products and sales volumes are summarised below in Table 4.1.

Table 3.1 – Central Lime Project Products

PRODUCT	SALES (TPA)
Limestone	500,000
Quicklime	356,400
Hydrated Lime	52,272
Road base / Aggregates	70,000

Source: MRL

Marketing and Sales

Limestone

MRL has identified an early cashflow opportunity to supply up to 500,000 tpa of limestone to a customer in New Caledonia. There is also an opportunity to supply other buyers of limestone and quarry products in the region.

Quicklime

Demand for quicklime in PNG itself is around 350,000 tonnes per annum and is predominantly from the mining industry for use in mineral processing with Newcrest Lihir being the largest consumer.

Most of this demand is served via imports from Asia and/or the Pacific region. The Project is aiming to capture circa 200,000 tpa or 66% of the total PNG market. In support of this supply metric, it is understood that most major consumers of quicklime in Papua New Guinea have domestic procurement provisions mandated as part of their license to operate.

It is planned to sell the balance of the quicklime production, circa 200,000 tonnes per annum, to customers in Australia. The Australian market is over 2 Mtpa and is also currently satisfied in part by internationally imported products from Southeast Asia. The Project will aim to capture this market, via its value proposition which includes price, quality, and supply responsiveness.

Hydrated Lime

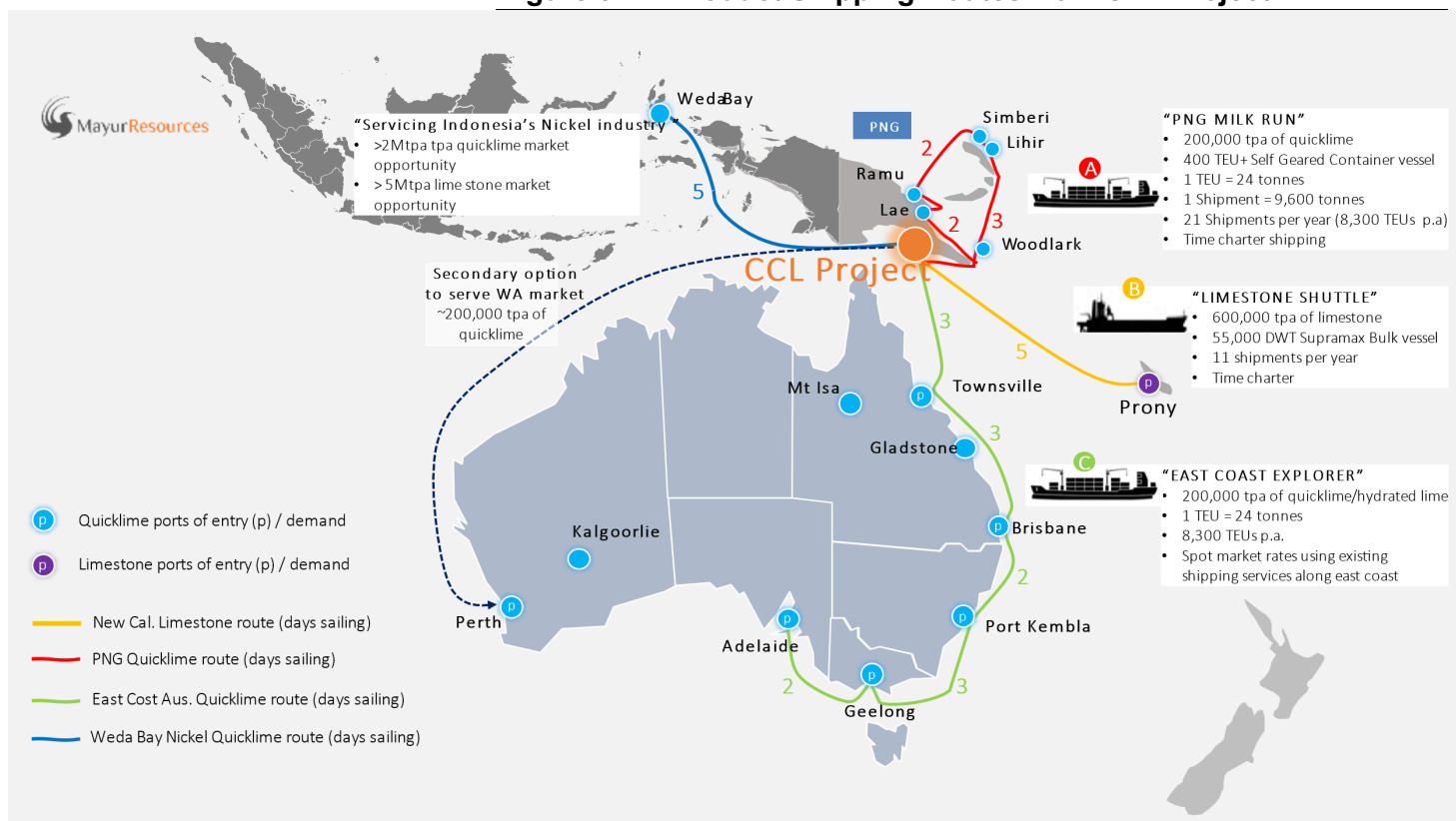
The CLP Project will produce circa 52,000 tonnes per annum of hydrated lime, manufactured to Australian industry specifications. Hydrated lime is a product that is sought by several customer segments such as road stabilisation and gold mining.

Shipping Logistics

MRL has identified four main shipping routes (see Figure 3.2) for the products as follows:

- PNG Milk Run route – a dedicated time charter coastal container vessel to transport the quicklime product to the key proposed customers in PNG;
- The East Coast Explorer Route – likely either a time charter vessel or existing services and for the distribution route for quicklime (and hydrated lime) along the east coast of Australia; and
- The limestone shuttle route – a dedicated time charter bulk vessel that would transport limestone / Limestone from Kido to New Caledonia.
- A dedicated vessel servicing Indonesia's key Nickel HPAL demand markets

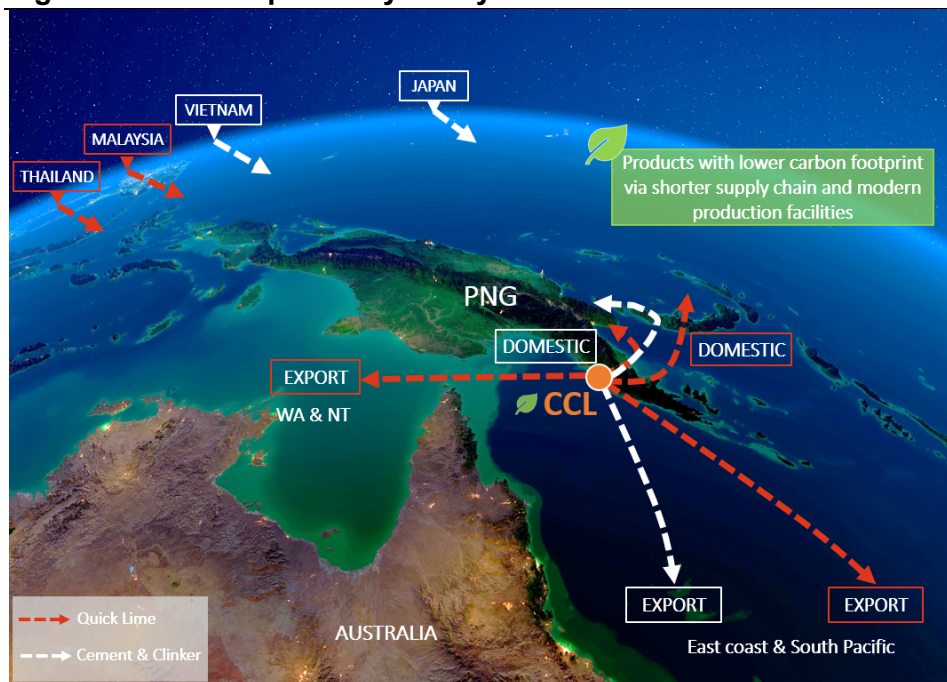
Figure 3.2 – Product Shipping Routes from CPL Project



Source: MRL

Both Projects have domestic and export freight advantages and is significantly closer to customers in Australia and the South Pacific than other seaborne supply.

Figure 3.3 – Close proximity to key markets



Source: MRL

4. Iron and Industrial Sands Project

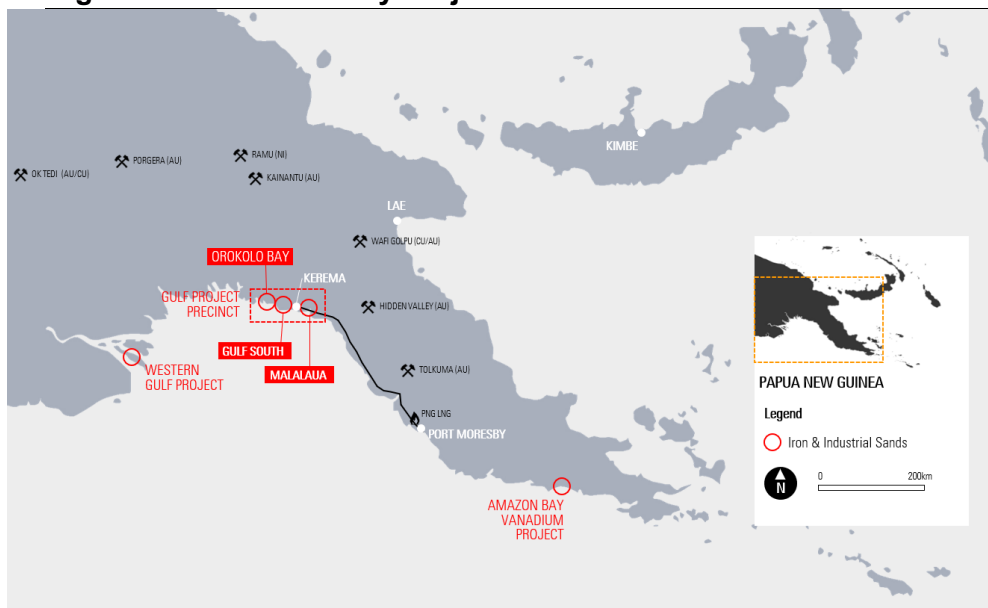
Introduction

Mayur is pioneering the development of a highly prospective iron and industrial sands province along the southern coastline and delta regions of the Gulf of Papua. There is potential for multiple projects, with near term routes to market and significant scalability to expand future low-cost operations.

The Gulf Project Precinct located near the Provincial Capital of Kerema in PNG includes the Orokolo Bay, Gulf South, and Malalaua projects.

In December 2020, a Mining Lease Application was submitted for the flagship Orokolo Bay Project which will produce a number of products including titanomagnetite, construction sands and a zircon-rich heavy mineral concentrate.

Figure 4.1 – Orokolo Bay Project Location



Source: MRL

This followed the completion of a Definitive Feasibility Study (DFS) for the project which reinforced its status as a simple, low CAPEX, and financially robust project with multiple product revenue streams.

The DFS confirmed that the project will produce a post-tax (real) NPV of US\$131 million (10% discount rate) and an IRR of 103.7%. An operational design with an initial CAPEX of US\$20.5 million has been calculated to establish a simple near surface mining operation that is forecast to produce 0.5mtpa of titano-magnetite, 1mtpa of construction sand and up to 10ktpa of zircon-rich heavy mineral concentrate.

Site enabling works have commenced at Orokolo Bay and offtake discussions have so far confirmed:

- An offtake agreement with a Chinese specialist pellet manufacturer
- An offtake terms sheet with a leading Japanese trading house.

A 25-year Environmental Permit issued by the CEPA is in place for Orokolo Bay which is expected to leave a lasting legacy for local landowners through the proposed post-mining sustainability land use initiative of a mechanised Sago plantation.

Gulf South has similar geology to Orokolo Bay and offers a JORC Resource extension opportunity. Whilst Malalaua, situated along the coast from Orokolo Bay, has the potential to be a repeat of Orokolo Bay and allow for a duplication of the planned development.

Geology and Mineralisation

The Orokolo Bay prospect comprises a series of preserved southeast to northwest striking beach strands of recent age, around 20 to 100m wide and several kilometres long, with mineralised thicknesses up to 5m and lithology characterised by fine medium to medium grey to blue grey sands.

Mineralisation is generally confined to the upper 2-2.5m of the soil/sand profile as loose sand grains, but significant mineralisation can occur in swamp areas beneath the swamp itself and on the dune ridges. Sand size is generally <1mm with a combination of fully liberated and interlocked mineral grains. The mineralisation of economic interest from the recovered magnetic fraction occurs primarily as titanomagnetite with ilmenite, Ti-oxide phases and Fe oxides including hematite and alteration products. Significant zircon is contained in the non-magnetic fraction of the heavy mineral concentrate.

Mineral Resource

On 28 May 2020, Mayur Resources announced a significant JORC Code Compliant Mineral Resource upgrade at its Orokolo Bay Mineral/Industrial Sands Project in PNG.

The overall resource estimate for the project (Western + Eastern Areas), which plans to produce titano-magnetite (associated with steelmaking), dense medium separation (DMS) magnetite (predominantly used in coal washing), construction sands (for concrete and asphalt production) and a zircon-rich valuable heavy mineral concentrate (utilised for many purposes in the foundry, ceramics and coating industries), has increased over 40 percent from 172.7 to 243 million tonnes.

Table 4.1 – Orokolo Bay Mineral Resource
Western Area 5.25% (Fe cut off)

Resource Estimates (Groundworks Plus)

Category	Mt	DTR %	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t
Measured	1.64	10.08	11.35	1.94	712	0.17	0.19	0.03	1,170
Indicated	70.1	6.82	9.13	1.17	508	4.78	6.40	0.82	35,587
Inferred	137.8	5.43	8.19	1.02	454	7.48	11.28	1.40	62,622
Total	209.5	5.93	8.53	1.08	474	12.42	17.87	2.25	99,378

Construction Sand Resource - Cut off 5.25% Fe (Western Area only)

Category	Mt
Indicated	38.6
Inferred	74.2
Total	112.8

Eastern Area (7.0 % Fe cut off)

Resource Estimates (H&S Consultants)

Category	Mt	DTR %	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t
Indicated	7.0	5.7	9.33	1.44	923	0.40	0.65	0.10	6,500
Inferred	26.5	5.2	9.00	1.39	921	1.00	2.39	0.37	24,400
Total	33.5	5.32	9.07	1.40	921	1.40	3.04	0.47	30,900

Source: MRL

Ore Reserve

On 2 July 2020, Mayur Resources announced a maiden ore reserve at its Orokolo Bay Mineral/Industrial Sands Project in Papua New Guinea (PNG). The 30 million tonne (Mt) maiden ore reserve follows the recent upgrade to the mineral resource estimate.

The maiden ore reserve estimate for the project has been prepared in accordance with JORC by Groundworks Plus, and is estimated at 30.6 Mt using a 5.5% Davis Tube Recovery (DTR) (approximately 8.2% Fe) cut-off, which is higher than the previously used 5.25% Fe cut off in the previous JORC Mineral Resource estimate. The planned mining rate for the project is 5 Mt per annum (Run of Mine) to produce several products, including titano-magnetite (used in steelmaking), dense medium separation (DMS) magnetite (predominantly used in coal washing), construction sands (for concrete and asphalt production) and a zircon-rich valuable heavy mineral concentrate (utilised for many purposes in the foundry, ceramics and coating industries).

Table 4.2 – Orokolo Bay Ore Reserve

Category	Mt	DTR %	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t	Construction Sand Mt
Proved	1.0	13.99	14.01	2.46	900	0.14	0.14	0.02	900	-
Probable	29.6	11.36	12.22	1.69	682	3.36	3.62	0.5	20,200	15.2
Total	30.6	11.45	12.28	1.72	689	3.51	3.76	0.53	21,100	15.2

Source: MRL. Davis Tube Recovery (DTR) produces iron product at 57% Fe.

Definitive Feasibility Study

On 11 September 2020, Mayur Resources announced the results of the completed Definitive Feasibility Study (DFS) for the company's Orokolo Bay Industrial Sands Project in Papua New Guinea.

The DFS confirmed that the project, which will produce a number of products including vanadium titano-magnetite (VTM), DMS magnetite, construction sands and a zircon-rich valuable heavy mineral concentrate and produces a post-tax (real) NPV of US\$131 million (10% discount rate) and IRR of 103.7%.

An operational design with an initial Capex of US\$20.48 million has been calculated to establish a five million tonne per annum mining and processing operation.

The key output of the DFS are as follows:

- Post-tax (real) NPV of US\$131 million (10% discount rate) and IRR of 103.7%
- Forecast life-of-project (LOP) revenue of US\$969m and Life-of-Project EBITDA of US\$380m over an estimated 15-year life
- Low initial CAPEX of US\$20.48 million to establish a 5 million tpa (ROM) mining and processing operation
- Payback of 1.1 years from start of operations
- Supported by the maiden Ore Reserve and 15-year production target for the Project as announced on 2 July 2020
- Optimised mine schedule has resulted in achieving a higher DTR cut-off (i.e. 5.5% DTR), a longer Life of Mine (15 years) and also a higher average DTR grade of 10.58% (this compares to the 12-year LOM at an average DTR grade of 10.1% as included in the 2017 Orokolo Bay Pre-Feasibility Study)
- Production of VTM - 0.4 Mtpa, magnetite for Dense Media Separation (DMS) - 0.1 Mtpa, zircon concentrate – 8,000 tpa, and silica construction sands - 1.0 million tpa
- Pricing assumptions for VTM product (excluding DMS) are calculated at approximately 77% of the 62% Fe CFR China long term reference price of US\$66.30/t. This pricing is consistent with Mayur's existing offtake arrangements.
- Average All in Sustaining Operating Cost (AISC) on a CFR basis of US\$25.23/t (on a combined basis of all products). The allocated AISC on a CFR basis for the VTM product is US\$ 30.34/t.

Products

The metallurgical test work further concluded that a simple flow sheet combining spirals with magnetic separation would enable beneficiation without a grinding circuit to achieve the following product specifications.

Vanadium Titano-Magnetite (VTM) concentrate

- Fe 57%
- SiO₂ 1.8%
- Al₂O₃ 2.01%
- TiO₂ 10 -12%
- P 0.05%
- V₂O₅ 0.48%

In addition, and as by-products to the processing of VTM, a zircon heavy mineral concentrate containing ZrO₂ (circa 20%) and a silica construction sand suitable for concrete and asphalt blends can be produced.

Permitting

On 13 December 2021, Mayur Resources announced that the PNG Government had granted the Orokolo Bay Iron and Minerals Sands Project a 20- year Mining Lease (ML).

The grant is the final statutory approval required to allow full-scale production of a multi-product operation, that is slated to produce 0.5 million tonnes per annum (Mtpa) of magnetite, 1 Mtpa of high-grade construction sand, and up to 10,000 tpa of zircon concentrate with its target markets being Japan, Australia, China and Singapore.

Offtake

On 6 July 2022, Mayur Resources announced a binding offtake agreement executed with titanium pellet producer Qingdao Shinebest for the sale of magnetite product from the fully permitted construction ready Orokolo Bay Iron and Industrial Sands Project.

The offtake covers 300,000 tonnes per annum for a 3-year period, with an option to extend for a further year, at market linked pricing.

This complements the magnetite offtake term sheet executed with leading Japanese trading house in December 2021.

5. Renewable Projects

Introduction

Mayur is developing a portfolio of opportunities that will enable the decarbonisation of Mayur's flagship projects and provide significant surplus green energy and nature-based carbon credits to serve the massive demand for renewables and the race to net zero.

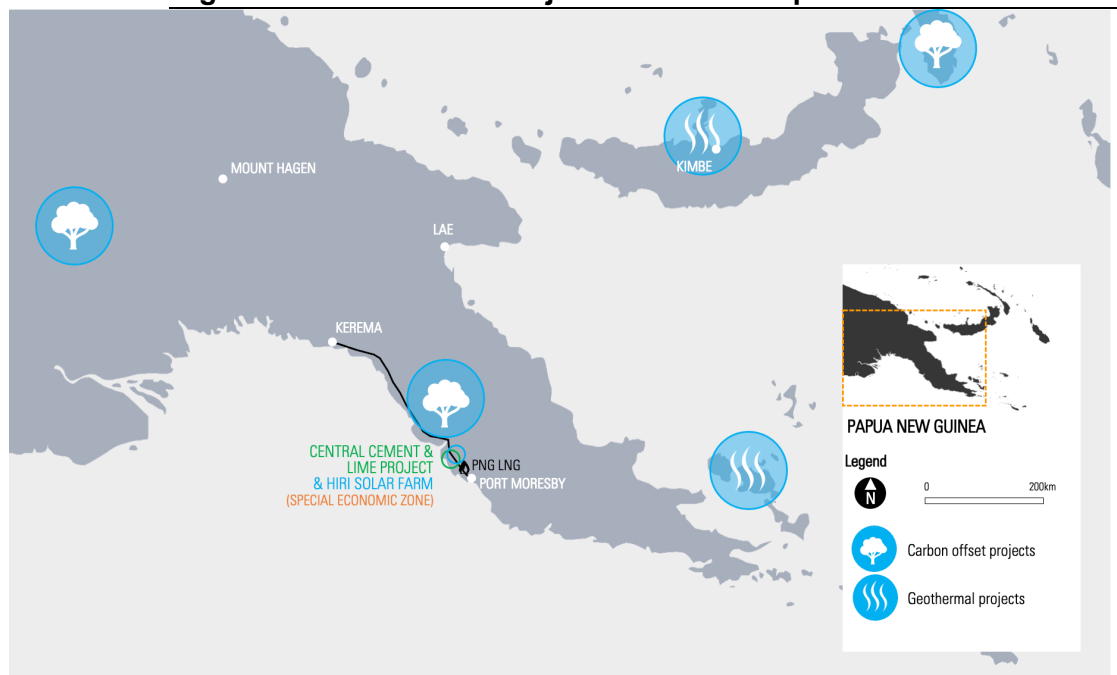
Mayur Renewables has three key focus areas.

- Nature Based Carbon Offsets
- Solar and battery storage
- Geothermal

Mayur Renewables has been established to:

1. Directly assist Mayur's nation building projects in PNG by providing a pathway to net zero through the establishment of renewable energy and carbon offsets projects for its unavoidable CO2 emissions at its CCL project.
2. Align and enhance broader ESG commitments and respond to the needs of future downstream building materials customers.
3. Provide projects of sufficient scale to establish standalone carbon and renewables-based opportunities directly addressing the race to decarbonize and achieve net-zero targets by both governments and private industry.

Figure 5.1 –Renewable Projects Location Map



Source: MRL

Carbon Offsets

Quick facts:

- Deforestation is the second leading cause of climate change, accounting for 10-20% of all Greenhouse Gas (GHG) emissions; yet it receives only 2% of climate finance;
- 1 billion of the world's extreme poor depend on forest resources for all or part of their livelihoods;
- 80% of all life on land is found in Forests; 1 million plant & animal species are threatened with extinction.

REDD+ Projects:

Reducing Emissions from Deforestation and the Degradation (REDD+) of Forests is a market-based mechanism that drives climate finance to protect forests.

• Nature Based offsets are projects that protect, transform or restore land in a way that captures and stores more carbon. These projects can lead to the marketing, trading, and sale of carbon credits.

REDD refers to mechanisms negotiated under the UNFCCC process to reduce emissions from deforestation and forest degradation in developing countries. An initiative to cut greenhouse gas emissions associated with forest clearing by the inclusion of "voided deforestation" in carbon market mechanisms. More simply, payment in return for the active preservation of existing forests.

Renewable Energy

On 9 November 2021, Mayur Resources announced the results of a renewable energy study for its recently granted Special Economic Zone (SEZ) and the "shovel ready" Central Cement & Lime (CCL) Project in PNG.

The study focussed on the provision of renewable solar power generation to supply:

- the CCL integrated and expanded project located within the SEZ;
- other potential new industry that could be established within the SEZ; and
- existing industry adjacent to the SEZ.

The number one driver for undertaking this study has been to support Mayur's vision of becoming the "Supplier of Choice" for carbon neutral lime and cement products in PNG, Australia and the Pacific. This aligns with Mayur's strategic direction of integrating renewables across its project portfolio and the establishment of Mayur Renewables as an entity to deploy a clean energy platform within the Pacific region.

The study was completed by VECKTA (www.veckta.com) to examine the opportunity for large-scale renewable solar farm/hybrid power whilst leveraging the strategic advantages and location of the SEZ.

The study indicated that an installed solar power capacity of around 500 megawatts (MW) could be achieved within the SEZ, similar in size to PNG's current total installed power capacity. The solar farm would not only provide a source of renewable energy for the CCL project, but also for use by other future large scale industrial users who would benefit from being in the SEZ, and power to local communities that currently have no access to electricity. Other opportunities include direct supply of renewable power to large nearby existing industrial users, and into the nearby Port Moresby transmission grid as and when demand arises.

6. Investment in TSXV: ADY

Mayur Resources Ltd (ASX: MRL) owns 42.8% of Adyton Resources, a Canadian public company listed on the TSX Venture Exchange (TSXV: ADY, OTCQB: ADYRF, FSE: 701GR). Mayur shareholders have exposure to highly prospective copper and gold assets with strong growth potential.

Adyton Resources Corporation focuses on the development of gold and copper resources in Papua New Guinea. The company's projects host a total 2,175,000 oz of gold (indicated and inferred) including the inferred mineral resource of 60,400,000 tonnes at 0.75 g/t Au for 1,460,000 oz gold at its Feni Island project and the Wapulo and Gameta projects on Fergusson Island hosting an additional 175,000 ounces of Indicated Resource and 540,000 ounces of inferred resource.

Over US\$20 million has been spent on exploration between 1982 – 2007.

Using a modest A\$15/oz value per resource ounce in the ground, we can derive a value of A\$32.6 million for ADY.

7. Directors & Management Team

Charles Fear, Chairman

Mr Fear co-founded Argonaut Limited in 2002 to provide M&A advice, undertake primary and secondary capital raisings, and provide stock-broking services to natural resources companies and companies that operate in the resources sector. Over the last ten years, Argonaut has advised on over \$4 billion worth of M&A deals, raised more than \$3 billion in equity and more than \$1.5 billion in debt for resource companies and projects. Argonaut works across the globe, and has conducted business in Australia, North and South America, throughout the Asia-Pacific region, and in Africa. Mr Fear is a former managing director of CIBC and director of Hartley Poynton Investment Banking. He is also a former partner of international accounting and consultancy group, KPMG.

Chris Indermaur, Non-Executive Director

Mr Indermaur is an Engineering and legal professional with over 30 years of experience in large Australian companies in Engineering and Commercial roles. He was Previously Engineering and Contracts Manager for the QNI Nickel Refinery at Yabulu, Company Secretary for QAL and General Manager for Strategy and Development at Alinta Ltd

Mr Indermaur is currently a Director of Austal Ltd (ASX: ASB), Austin Engineering Ltd (ASX: ANG) and Centrex Metals Ltd (ASX: CXM).

Benjamin Szeto, Non-Executive Director

Benjamin Szeto is resident of Singapore, and is a faculty member of the Wealth Management Institute (founded by GIC and Temasek), lecturing on Trust Regulations and Practices. He is a recognised key lawyer in the Legal 500 Asia Pacific, 2020. He currently serves on the Law Society of Singapore's Tax & Trust Committee 2021. He was most recently the Director & Head of Private Client at Atlas Asia Law Corporation, part of the global EY network. He was previously the Deputy Head of the Private Wealth Industry Group of a large law firm.

Tim Crossley, Executive Director

Mr Crossley has extensive experience as a director and mining executive, having operated some of Australia's largest mining businesses including roles as Deputy CEO of ASX-listed Gloucester Coal, and President and Chief Operating Officer (COO) at BHP Billiton's West Australian Iron Ore business. Tim also held the position of Executive General Manager of carbon steel materials for Gina Rinehart's Hancock Prospecting Pty Ltd's Roy Hill project. Tim has also held senior roles in BHP's manganese business and metallurgical coal business and was a Director in ASX-listed VDM Group. Tim is also a former President of the

Northern Territory Minerals Council and Executive Chairman of Trans-Tasman Resources.

Paul Mulder, Managing Director

Mr Mulder has 29 years of successful executive management experience in project development, operations and commercial transactions. Paul is a founding shareholder of Mayur Resources and has been Managing Director since 2014. Prior to this, Paul spent 6 years with Gina Rinehart's Hancock Prospecting Pty Ltd leading its coal and infrastructure projects. This included development and successful divestment of a \$15bn mine, port and rail development in Queensland, Australia. Prior to this Paul worked for BHP Billiton for 13 years in various senior management roles across BHP's steel, coal and iron ore divisions. Paul is a Materials Engineer with an MBA and is a former Director of the Queensland Resources Council.

Darren Lockyer, Head of Business Affairs

Mr Lockyer is a high-profile retired sports star and former Australian Rugby League captain, PNG's most popular sport. He has experience working with communities, businesses and government in various capacities and enjoys an extremely large following in PNG following his achievements as a player and respected leader.

Keith Downham COO/CEO Mayur Iron (Orokolobay project)

Mr Downham is a mining engineer with 35 years of experience leading delivery and operations of mining projects in Australia, Indonesia and the UK. This included Peabody Energy's world class Wilpinjong Mine in NSW, Australia and successful delivery of coal projects and operations in remote parts of Indonesia.

Kerry Parker, Chief Financial Officer and Company Secretary

Mr Parker is a highly experienced executive leader with 30 years demonstrated experience leading multi-discipline teams across a broad commodity mix.

Mr Parker is an experienced company secretary and CFO and has Deep knowledge of debt and equity markets gained through previous experience Arrow Energy, Australian Future Energy, Santos and KPMG.

Shawn Thompson, Project Director

Mr Thompson brings a diversity of project experience that uniquely fits with the Company's mix of projects and commodities. He has more than 30 years' experience in designing and delivering, from the ground up, power plant/energy, iron and steel, metals, mineral sands and infrastructure projects in South Africa, Saudi Arabia and New Zealand. He previously held senior roles with Transfield Worley, Beca Carter and Saudi Iron & Steel. Mr Thompson is a Fellow of the Institute of Mechanical Engineers (IMechE), a member of the Institute of Engineering Designers (UK) and American Society of Mechanical Engineers (ASME) and is registered as a professional engineer with the UK Engineering Council.

Tom Charlton, Chief Geologist

Mr Charlton is a geologist with over 25 years of mineral exploration experience. He has worked in PNG since 1997, working at the Department of Mines for four years on a World Bank project compiling PNG's geological database. Mr Charlton has worked for various private and publicly listed exploration companies. Mr Charlton has worked with the Company since its inception in 2011.

Bruno Wauters, Advisory Board Member – Lime

Mr Wauters is a senior industrial minerals industry executive. He was formerly CEO of Sibelco Asia and has over 20 years' experience in the industry (including lime). He led the development from scratch of 27 mining and processing operations in nine countries across Asia. He is a co-founder of MCSL, which has aggregate, calcite and lime operations in Laos. He is currently based in Indonesia.

Brad Lemmon, Advisory Board Member – Lime

Mr Lemmon has over 30-year experience in the construction materials and mining services industries, bringing a range of skills, spanning operations & logistics, commercial and strategy, with key strengths in building high performing teams and capturing growth opportunities.

Having held several leadership and executive positions within Adelaide Brighton Ltd, Mr Lemmon has gained extensive background knowledge and contacts, particularly within the Cement, Clinker, and lime industries.

Campbell Jones, Advisory Board Member – Lime

Mr Jones is a seasoned executive with over 30 years' experience at the CEO level with international experience including seven years in North America with companies generating multi-billion-dollar revenues.

He has held various executive and board positions in prominent Australian and USA based industrial mineral companies such as Sibelco, Unimin Corporation, Covia Holdings, and Greentech Minerals.

Trent Alexander, Advisory Board Member – Lime

Mr Alexander has previous senior leadership positions with Brickworks, Hanson, Adelaide Brighton and Orica. His background spans technical, operational and commercial responsibilities in the delivery of concrete manufacturing facilities and quarries. Mr Alexander was instrumental in the successful delivery of the first independent bulk cement import terminal in Queensland Australia.

8. Investment Risks

MRL is exposed to a number of risks including:

- **Geological risk:** the actual characteristics of an ore deposit may differ significantly from initial interpretations.
- **Resource risk:** all resource estimates are expressions of judgement based on knowledge, experience and industry practice. Estimates, which were valid when originally calculated may alter significantly when new information or techniques become available. In addition, by their very nature, resource estimates are imprecise and depend to some extent on interpretations, which may prove to be inaccurate.
- **Commodity price risk:** the revenues MRL will derive mainly through the sale of cement and mineral products exposing the potential income to commodity price risk. The price of cement and minerals fluctuates and is affected by many factors beyond the control of MRL. Such factors include supply and demand fluctuations, technological advancements and macro-economic factors.
- **Exchange Rate risk:** The revenue MRL derives from the sale of metal products exposes the potential income to exchange rate risk. International prices of cement and minerals are denominated in United States dollars, whereas the financial reporting currency of MRL is the Australian dollar, exposing the company to the fluctuations and volatility of the rate of exchange between the USD and the AUD as determined by international markets.
- **Mining risk:** A reduction in mine production would result in reduced revenue.

- **Processing risks:** A reduction in plant throughput would result in reduced revenue. In all processing plants, some metal is lost rather than reporting to the valuable product. If the recovery of metal is less than forecast, then revenue will be reduced.
- **Operational cost risk:** an increase in operating costs will reduce the profitability and free cash generation of the project.
- **Management and labour risk:** an experienced and skilled management team is essential to the successful development and operation of mining projects.

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